



Response Under 37 CFR 1.116-
Expedited Procedure-Examining Group 3743

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October 30, 2002
Date

Judith Muzyk
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Docket No.: **582/9-1477**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Albert BAUER

Serial No.: 08/998,507

Group Art Unit: 3743

Filed: December 26, 1997

Examiner: John Ford

For: AIR CONDITIONING APPARATUS

Commissioner for Patents
Washington, DC 20231

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RESPONSE AFTER FINAL REJECTION

Sir:

In response to the Final Office Action dated July 2, 2002, the applicant hereby respectfully traverses the examiners' grounds for rejection.

Mr. Bauer and I wish to thank the examiner for the interview granted on September 30, 2002 and for the opportunity to review and discuss a videotape showing the inventor's system in operation. The suggestions by the examiner were quite helpful and are incorporated in a continuation application filed separately. The following remarks are offered in support of the patentability of the claims as presently constituted in the above referenced application.

Claims 44 and 51 through 59 were rejected under 35 U.S.C. §102(b) as being anticipated by Johannsen, U.S. Patent No. 4,257,318, with reference to Col. 2, l. 3-15, Fig. 5, Col. 4, l. 36-47, and Col. 12, l. 39 and 59-61.

The Federal Circuit has consistently held that anticipation can only be established by a single prior art reference which discloses each and every element of the claimed invention. In re Bond, 910 F.2d 831 (Fed. Cir. 1990); Atlas Powder Co. v. E.I. DuPont de Nemours & Co. 750 F.2d 1569 (Fed. Cir. 1984). The Federal Circuit has also stated that “even if the claimed invention is disclosed in a printed publication, that disclosure will not suffice as prior art if it is not enabling.” In re Donohue, 766 F.2d 531, 533 (Fed. Cir. 1985) (citing In re Borst, 345 F.2d 851, 855 (C.C.P.A. 1965), cert. denied, 382 U.S. 973 (1966), Seymour v. Osburn 78 U.S. (11 Wall.) 516, 555 (1870) (publication constitutes anticipation only if it enables one skilled in the art to “to understand the nature and operation of the invention, and to carry it into practical use.”).

The examiner referred to Fig. 5 and the description beginning at column 12, line 39 as disclosing “regulating the exhaust blower to be a fixed CFM below the supply air CFM. This clearly varies the room pressure relative to the outside so that a slight positive pressure will be maintained in the building...”. (Final Rejection, page 2). However, the inventive system does not maintain a slight positive pressure in a room, but, to the contrary, varies the room pressure in correspondence to the selected room temperature.

For the anticipation analysis, the applicant would draw attention to the regulating means of claim 44 which read as follows “means for regulating an increase in pressure in the

at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature.” (emphasis added)

The pressure regulating means is a key feature of the invention. Rather than having a system which substantially maintains the room pressure regardless of the selected room temperature, the inventive system integrates room pressure as a controlled variable in the temperature control scheme, by varying the room pressure in correspondence to the selected room temperature.

As stated on page 6, lines 13-18 “in the first place, for the heating case in which the desired value of the room temperature is less than the actual value of the room temperature, the channel pressure of the supply air is lowered with rising room temperature. Correspondingly, for the cooling case, in which the desired value of the room temperature is greater than the actual value of the room temperature, the channel pressure of the supply air is lowered with falling room temperature.” The effects on room pressure are illustrated in Fig. 6a, which shows the pressure profile when the actual room temperature is less than the desired room temperature, and Fig. 6b which shows the pressure profile when the actual room temperature is greater than the desired room temperature. (Spec. p.14, l. 20-26) None of the art cited by the examiner discloses such a pressure regulation system which varies room pressure in correspondence to the selected room temperature.

The examiner’s reliance on Fig. 5 of Johannsen is misplaced as : “Fig. 5 illustrates the required relationship between air flow of the discharge blower and the return blow in a typical distribution system... curve 160 represents the required relationship between the two blowers

for the hypothetical building under discussion. Broken line 161...represents equal values of the supply and return blowers. Curve 160 is offset below curve 161 by a constant value of 5000 CFM, so that at a supply blower rate of 40,000 CFM, the return blower requirement is 35,000 CFM and so on down to a 0 return blower requirement for a 5000 CFM supply air flow. The 5000 CFM difference represents the relatively constant exhaust from the building through bathroom vents and the like previously discussed. In actual practice the actual blower is operated at slightly less than the values indicated in Fig. 5 so that a slight positive pressure will be maintained in the building....” Col. 12, lines 38-60. (Emphasis added)

This description confirms that regardless of variations in the air supply volume, the difference between supply and return is constant, and no pressure regulation is accomplished according to Johannsen and certainly no pressure regulation means are provided to vary room pressure in correspondence to the selected room temperature. Even the slight positive pressure is described relative to the amount of exfiltration, not selected room temperature.

The reference to Col. 4, lines 36-47 is also contrary to the applicant’s invention, as it states specifically that “these temperature control groups are not part of the pressure control system of the present invention.” (Emphasis added) In fact , the invention is stated as an improved pressure control system for an air distribution system which “provides a variable dead band control for greater efficiency in maintaining a desired pressure. Col. 3, lines 15-17 (Emphasis Added).

When considering the document as a whole, there is no disclosure of the pressure regulation means as described in claim 44, and certainly, Johannsen lacks an enabling

disclosure as there is nothing which would enable one skilled in the art referring to Johanssen to effect pressure regulation to vary the room pressure in correspondence to the selected room temperature. Consequently, claims 44 and 51-59 are not anticipated by Johanssen.

Claims 44 and 51-59 were rejected under 35 U.S.C. §103(a) as being unpatentable over the prior art (Johanssen) as applied to claims 44 and 51-59 discussed above and further in view of Rayburn, et al U.S. Patent No. 5,971,067.

In order to uphold a finding of obviousness, there must be some teaching, suggestion or incentive for doing what the applicant has done. ACS Hospital Systems, Inc. v. Montefiori Hospital, 723 F.2d 1572 (Fed. Cir.1984). It is not within the framework of 35 U.S.C. §103(a) to pick and choose from the prior art only so much as will support a holding of obviousness to the exclusion of other parts necessary for a full appreciation of what the prior art teaches or suggests, as hindsight is not the test. In re Wesslau, 353 F.2d 238 (C.C.P.A. 1965). Also, “both the suggestion and the expectation of the of success must be found in the prior art, not in the applicant’s disclosure”. In re Dow Chemical Co., 837 F.2d 469 (Fed. Cir. 1988).

As discussed above, Johanssen discloses a system which maintains room pressure regardless of the variations in volumetric flow through the room. In fact, the dead band controller is specifically used to dampen variations so as to more closely maintain the constant pressure sought in the room. Fig. 4 is illustrative as it shows a command set point voltage 146 demonstrating how closely the pressure value of curve 143 tracks with the command set point voltage 146. The description in Col. 10, lines 40-67 relates how when a vent is opened, the

system adapts by making adjustments so as to maintain the pressure regardless of the opening of the vents.

This is completely contrary to the applicant's invention which has means for regulating an increase in pressure in a room, to vary the room pressure in correspondence to the selected room temperature. In Johannsen, the pressure control circuit is totally independent of the temperature control loops, as stated on Page 4, lines 45-46. Therefore, there is no teaching, suggestion or incentive in Johannsen for providing the system of the applicant's invention as described in claim 44.

The examiner refers to Rayburn Fig. 2 and Col. 7, lines 1-12 as describing how conventional zone air controllers operate. However, even with that disclosure, there is no disclosure in Rayburn of the particular relationship called for in claim 44 of the applicant's invention, utilizing pressure regulating means for varying room pressure in correspondence to the selected room temperature. In fact, the combination of the teachings would lead one to use the dead band controller of Johannsen with Rayburn, to more closely maintain the room pressure, regardless of the variation in air flow volume. Thus, one is lead away from, not towards, the applicant's invention.

Consequently, the combination of references does not teach, suggest or even hint at the applicant's invention. Rather, these references teach the contrary, as one skilled in the art reviewing these two patents would be led to conclude that it is important to maintain room pressure in the face of variable volume flow rates and to have controls for assuring that the room pressure is maintained. Clearly, claim 44 is not rendered obvious in view of this

combination.

Claim 45 was rejected under 35 U.S.C. §103(a) as being unpatentable over the prior art described above as applied to claim 44 and further in view of Benton, et al U.S. Patent No. 4,347,712. The examiner referred to Benton by stating “to vary supply air temperature of Johannsen in the manner taught by Benton to save energy would have been obvious to one of ordinary skill”. However, while claim 45 relates to the control arrangement for controlling the cooling/heating means to adjust the temperature of the supply air, there still remains no teaching, suggestion or incentive in the combination for providing means for regulating an increase in pressure in at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature. As in the prior art discussed above, Benton at Col. 2, lines 34-39 describes that there is a differential pressure controller 21 “to maintain a predetermined air pressure in the supply or discharge duct 25.”. Again, maintenance in the face of variable flow volumes is indicated. Note that this is the only mention in the patent of any pressure control, and there is no mention or even an inference of any room pressure control relative to the selected room temperature. Consequently, Benton directs one skilled in the art away from the applicant’s invention. As there is no teaching, suggestion or inference for utilizing means for regulating an increase in room pressure in at least one room to vary the pressure in correspondence to the selected room temperature, claim 45 is not obvious in view of the combination suggested by the examiner.

Claim 46 was rejected under 35 U.S.C. §103(a) as being unpatentable over any of the above described prior art as applied to claim 44 and further in view of Robinson, U.S. Patent

No. 4,189,094. Claims 46 further adds that the regulating means regulate the room pressure relative to an outside air temperature. In the first instance, none of the documents cited by the examiner teach or suggest regulating the room temperature in correspondence to the selected room temperature as described above and the deficiency is not overcome by the combination with Robinson. Robinson describes the use of mechanisms for controlling the speed of the supply and exhaust motors "with a view to maintaining the fan outputs equal to each other and so avoiding any difference in pressure between the pool itself on the one hand and the changing areas, halls, cafeterias, etc. on the other hand..." In other words, Rayburn also describes a system having controls which maintain room pressure but do not have means for regulating an increase in room pressure to vary the room pressure in correspondence to the selected room temperature. Absent a teaching, suggestion or incentive for doing as the applicant has done, claim 46 is not rendered obvious by the combination.

As discussed above, the applicant's invention is directed to a system which is distinct from the air conditioning systems of the prior art where room pressure may be independently controlled, without relation to the temperature control loop, and only provided to assure that a constant pressure is maintained regardless of the variations in the volume of air flow. Rather, the invention goes in the opposite direction in that room pressure is a controlled variable, changing in correspondence to the selected room temperature, which surprisingly has a significant impact on air mixing and temperature uniformity, while enabling the use of up to 100% of fresh air make-up. Drafts and cold/hot spots are avoided increasing comfort, and the elimination of high recirculation rates found in the prior art systems generates significant

energy savings of up to 50%. Clearly, there is no teaching, suggestion or incentive in any of the references cited for the system of the applicants invention, and as shown in the materials presented during the interview, the results have surprised facilities managers in the dramatic improvement in temperature control, comfort and significantly reduced energy costs.

Consequently, based on the above remarks, favorable reconsideration and removal of the grounds for rejection are respectfully requested. However, should the examiner believe that direct contact with the applicant's attorney would advance the prosecution of this application, the examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,



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